

INF2004 - Embedded Systems Programming

Team 90 Testing

Group members:

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# Integration Testing

1. Motor + IR Sensor
2. Motor + Ultrasonic
3. IR Sensor + WiFi + Motor

Test 1: Motor + IR Sensor

The team used decision table in order to map the various inputs and outputs of the IR sensor and the equivalent output for the wheel. This is done for the turning of 90 degrees when detecting a black line in front, and adjusting the car when there are detection of black lines on the left/right.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Cause |  | Values | No 1 | No 2 | No 3 | No 4 |
| C1 | Right IR detects black | Y/N | Y | Y | N | N |
| C2 | Left IR  detects black | Y/N | Y | N | Y | N |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Effect | Effects | No 1 | No 2 | No 3 | No 4 | Expected Output |
| E1 | Car goes straight |  |  |  | X | Pass |
| E2 | Car turns 90 degrees left | X |  |  |  | Pass |
| E3 | Car adjusts right |  |  | X |  | Pass |
| E4 | Car adjusts left |  | X |  |  | Pass |

Test 2: Motor + Ultrasonic

The team used equivalence partitioning for ultrasonic, since there are a wide range of values for ultrasonic. Below is a table for the expected output for the values detected by ultrasonic

|  |  |  |
| --- | --- | --- |
| Value from ultrasonic sensor | Expected results | Expected Output |
| >5.0 | Go forward | Pass |
| <5.0 | Go backwards for 2 secs | Pass |

Test 3: IR Sensor + Wi-Fi + Motor

The team used decision table for the IR sensor + Wi-Fi + Motor. Each time the car moves across the barcode and successfully decodes it based on the values it read, it will print out the equivalent data on the webserver

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cause |  | Values | No 1 | No 2 |
| C1 | Barcode successfully decoded | Y/N | Y | N |

|  |  |  |  |
| --- | --- | --- | --- |
| Effect | Effects | No 1 | No 2 |
| E1 | Character printed on webserver according to barcode | X |  |
| E2 | Character printed on webserver is null value |  | X |